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INCREASING COMPETITIVENESS - TECHNICAL SERVICES FOR THE SASKATCHEWAN MEAT INDUSTRY (SRP) TRANSITION

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UNIVERSITY OF SASKATCHEWAN

College of Agriculture
and Bioresources

INCREASING COMPETITIVENESS – TECHNICAL SERVICES FOR THE SASKATCHEWAN MEAT INDUSTRY

Final Report to
The Saskatchewan Ministry of Agriculture

ADF Project # 20030478 / 20030184

April, 2003 to December, 2009

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(formerly Department of Applied Microbiology and Food Science)
University of Saskatchewan

February, 2010

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EXECUTIVE SUMMARY

The Meat Industry Service Program (Technical Services for the Saskatchewan Meat Industry) and its predecessor, the Saskatchewan Food Product Innovation Program, has now been in existence for 20 years (7 and 13 years, respectively). The impetus for the current program grew out of the restructuring of the Saskatchewan Agriculture, Food and Rural Revitalization Strategic Research Program in 2003. The meat service activities of the Value-Added Meat Program did not fit the new funding model; however, there was a recognized industry and research need for these services. This report describes activities of the Meat Industry Service Program from April 1, 2003 to December 31, 2009. We were blessed to have capable staff with the program to deliver the various activities. Core staff over the seven years of this program included: P. Rogers, D. Poberezнek, R. Sefton, H. Silcox, N. Wiebe and D. Moore.

The completion of this project marks the end to a long era of providing comprehensive support to the Saskatchewan meat industry through technology transfer, product development, technical support and education.

Technology was transferred to industry through a series of short courses, numerous telephone contacts, participation in producer events and plant visits throughout the province. Program staff members visited many meat processors throughout Saskatchewan, presenting the role of the Meat Group and answering any technical questions they had. These visits resulted in a number of technical troubleshooting calls from small and medium sized processors. Topics of interest by Saskatchewan meat processors include the lack of experienced employees, improving product quality and shelf-life as well as ways to maximize profits by better processing procedures and techniques.

Product development with and for industry represented about 35% of program effects. Program staff carried out numerous product development projects in collaboration with the Saskatchewan

Food Industry Development Centre and provided one-on-one assistance to a number of processors. We have assisted processors with development of various products ranging from ostrich jerky to burgers to fresh and cured sausages to pet food. There have been some clients developing products for "Organic Meat" market and "No nitrite added" product area. Also there has been continued growth in value-added cuts and fully cooked products from mature cattle and bison.

Other research and development activities supported the wider meat industry. We have carried out evaluations of pork meat quality to support genetic and dietary evaluation trials. We also evaluated beef quality parameters (Warner Bratzler shear) of beef steaks as a service activity to the beef cattle industry. Our work to support industry even extended beyond the meat processing industry. We were able to offer several Saskatchewan ingredient processors an extensive assessment of their ingredient in meat products. This gave each ingredient supplier valuable information on how their product performed as we compiled detailed yield, texture and water holding data for their use. Thus the work of this program offered support to animal producers, non-meat ingredient suppliers as well as the meat processing industry.

The program staff also oversaw daily operations of the meat pilot plant, which is a show-place for visitors to the College of Agriculture and Bioresources. We have also participated in practical experiences for several University courses and assisted with graduate student research.

Through the various activities described, the project has assisted industry in generating new products, increased their awareness of new technologies, and has contributed to the competitiveness of the meat sector in Saskatchewan. Hopefully, in the future, resources may permit the restoration of this program.

BACKGROUND AND PROJECT OBJECTIVES:

The Saskatchewan Food Product Innovation Program (SFPIP) (a.k.a. The Meat Group) was established as an ADF project in 1989 to conduct meat research and to provide technical assistance and new product development initiatives to assist in the expansion and diversification of the Saskatchewan meat processing industry. From 1991 to 2003, the program operated as an ADF strategic research program (SRP). With the change to the new SRP structure, it was important that the meat industry service / meat pilot plant infrastructure and expertise built up at the University of Saskatchewan not be lost. Thus, this project was initiated in 2003 to build upon the success of the SFPIP to provide product development and technical assistance to meat processors with continued efforts towards development of a competitive and sustainable meat processing industry in Saskatchewan.

The overall objective of this project was to develop and deliver a program that focused on technologies to support the expansion of value-added meat processing in the province of Saskatchewan. Specific objectives included:

1. To identify and evaluate new and novel ingredients or processes that will improve the efficiency, competitiveness or safety of products produced by Saskatchewan meat processors.

2. To provide product development assistance to the meat processing industry and related producer associations in co-operation with the Saskatchewan Food Industry Development Centre.

3. To be a credible source of current information on meat science and technology and provide technical support, rapid response trouble shooting, on-site advisory services and other assistance to support the meat industry in the province.

4. To provide a form for technology transfer and training to the industry via seminars, workshops, newsletters, and short courses.

5. To maintain the daily operation of the modern meat pilot plant in the College of Agriculture and Bioresources and provide technical support/assistance to meat research projects being undertaken at the University of Saskatchewan.

Some details are provided below on our efforts with respect to each objective.

ACTIVITIES RELATED TO SPECIFIC OBJECTIVES:

Objective 1:

To identify and evaluate new and novel ingredients or processes that will improve the efficiency, competitiveness or safety of products produced by Saskatchewan meat processors.

During the project, we continued to keep up to-date on new ingredients or processes that will benefit the industry, through our industry contacts, reading trade journals, and attending various training events such as the Canadian Meat Council/ Canadian Meat Science Association Symposia and other courses or workshops. For example, Neil Wiebe attended the Iowa State University Processed Meats Short Course in 2006 to observe their short course style, learn about American meat product regulations and novel processes. Several staff members also took or participated in the FD SC 457 Meat Science and Technology course at the University of Saskatchewan for upgrading their knowledge.

We evaluated various new ingredients (ranging from pulse flours to plant-based gums) in our pilot plant facilities and transferred that knowledge to others, through workshops and seminars and one-on-one encounters. We also participated in several industrial research and development project for clients of the Food Centre by performing detailed evaluations of the client's

ingredient in several meat systems. For one project, this involved adding the plant-based ingredient at three levels (including a 0 level control) to three different types of meat products to assess its ability to affect texture and water holding in each meat system. Each trial was repeated three times, resulting in 27 formulations tested. Some samples were also provided to the Food Centre for sensory evaluation. We performed detailed yield, texture and water holding assessments and carried out a statistical analysis of the data for the client. The client was able to use this information in promoting their functional food ingredient to the meat industry. We also developed expertise in working with this ingredient for future applications.

Objective 2:

To provide product development assistance to the meat processing industry and related producer associations in co-operation with the Saskatchewan Food Industry Development Centre.

Product development clients came to work with us directly or through referrals from the Saskatchewan Food Industry Development Centre. As a result of the discovery of Bovine Spongiform Encephalopathy (BSE) in beef cattle in Canada, the need to develop value-added meat products particularly from undervalued meat cuts increased. We have been very successful in the development of marinated and seasoned meat products from the round and brisket cuts. The shelf stable snack stick and jerky category continues to show significant growth. Young adults are attracted to the product as it is low in fat and high in protein but are demanding a softer, more palatable texture. We have acquired considerable experience in this area and have developed many products for clients using unique non-meat ingredients and processing conditions. One interesting example, to show proof of concept, was to utilize dried chokecherry pits provided by Dr. Reaney, SAF chair, to smoke a bison-chokecherry jerky that we had developed. It was showcased at the Canadian Section of the American Oil Chemist's Society meeting held in Saskatoon in October, 2005.

The close working relationship with the Saskatchewan Food Industry Development Centre benefited both programs. Several products have been developed and launched into the marketplace as result of this collaborative effort. An example from 2004 was the development and launch of the three seasoned and marinated bison strip products and a garlic coil sausage for the Saskatchewan Bison Association.

We have assisted processors with development of various products ranging from ostrich jerky to burgers to fresh and cured sausages to pet food. Interest in "no nitrite added" cured products also has been increasing, which required specialized expertise and application of new technologies. There has been a continued demand for our product development services over the past seven years. About 35-40% of program efforts were directed to product development, with 150 to 300 formulations prepared each year in support of product and process development for industry clients. The four main species were pork, beef, chicken and bison. The scope of the projects were quite varied, however, there were two product categories that showed growth in recent years: value-added cuts and fully cooked products from mature cattle. Some products were developed for the organic market, a niche market showing continued growth. Products ranged from wieners and fresh sausage to meat loaf and marinated items.

Some of the product development work was initiated for clients of the Food Centre. Following initial development in our facilities, several entrepreneurs are now moving to the next step and considering scale-up of their products at the Food Centre and other meat processors. One of the processors is looking to develop products for the United States market. Sometimes, the road to successful market introduction is quite long. For example, we worked with the Saskatchewan Sheep Development Board on lamb product development back in the mid 1990's (actually prior to this program), which only became a market reality in the mid 2000's under the Canadian Prairie Lamb banner, so it could be several years before our recent product development efforts are launched in the marketplace.

We also undertook some in-house product development to use in various promotion events. This included showcasing several commercial beef items at the windup reception for the Saskatchewan Beef Development Fund (June, 2006) and several chicken items for the Saskatchewan Poultry Conference (February, 2007). More recently (2008-2009), a range of processed meats with added chickpea and lentil flour were developed and sampled at events of the Saskatchewan Pulse Growers.

Objective 3:

To be a credible source of current information on meat science and technology and provide technical support, rapid response trouble shooting, on site advisory services and other assistance to support the meat industry in the province.

We have continued to provide technical support and trouble shooting assistance to the industry. We assisted several clients with chemical analysis to support their nutritional labeling updates in 2005 to present. Large processors had until December 2005 to update their nutritional labels, while smaller companies were given until December 2007.

Over the seven years of the project, we tracked the number and nature of our interactions with industry. Some averages from this time include:

- Technical consulting and trouble shooting was provided to 50 to 75 meat industry or affiliated agency clients per year. Some issues were handled over the phone, while others involved plant visits, or evaluation of formulations or labels, etc.
- About 35-40% of program efforts were directed to product development, with 150 to 300 formulations were prepared each year in support of product and process development for industry clients.
- Chemical analysis was performed on a number of samples from both technical consulting and research projects. The annual average number of samples tested was 100 to 300, with

300 to 600 specific chemical tests performed.

- Educational activities accounted for about 25% of program staff time, with research support ranging from 10 to 25% of time per year.

Since September 2005, Heather Silcox's role as an analytical services technician in the Department expanded to provide some services to this project (30% of her time). She has provided advice to various companies in the area of analytical testing and contributes to projects under this program in various ways (sensory evaluation, chemical analysis, instrumental evaluations of product quality, ordering of supplies).

Over the years, we provided some on-site advisory services to several companies. For example, one project required that H. Silcox help a processor set up their laboratory testing of free fatty acids. She traveled to this facility to provide on-site training to two of their staff and also provides on-going telephone support. D. Pobereznek spent time with the same client addressing smokehouse issues, product flow and better processing procedures. We have found that in order to provide the best technical assistance to a client, we really need to see their facility to truly understand their needs.

We made a special point over the past few years to visit a number of small meat processors. In May and June of 2007, H. Silcox and D. Pobereznek visited 22 meat processors in the northwest and south central parts of the province and in July 2008 they visited 15 meat processors in east central Saskatchewan. It was a chance to see these processors in action and offer assistance directly. Everyone visited indicated that they were very busy, but that they could not find skilled personnel to help with most establishments needing 2 or 3 more production staff.

At least annually, newsletters were set to our mailing list to update industry on upcoming events and to offer information on current issues that they may be facing. An example is included in **Appendix 1**.

Objective 4:

To provide a forum for technology transfer and training to the industry via seminars, workshops, newsletters, and short courses.

We provided support to the Saskatchewan Meat Processors Association (SMPA) as one vehicle for technology transfer. During each year of the project, staff participated in the Saskatchewan Meat Processor's Association Convention and Trade Show. Each year, two or three staff served as judges for the processed meats competition, and then interacted with processors to give them tips on how to improve their products. We also often had a booth at the tradeshow and displayed products and services that the program has to offer. In addition, we contributed speakers and workshops held in conjunction with the convention. Our staff also participated in the SMPA executive by serving as directors of the organization.

The program offered a number of short courses over the past seven years. For most of the courses, a detailed collection of resources, recipes, regulations and other materials were assembled in a short course manual given to each participant. A listing of the manuals developed is provided in **Appendix 2**. Two Sausage and Processed Meats' Short Courses were held in April and May, 2003. Both were well received. A review of the participant's comments on the 2003 course clearly showed two distinct meat processing groups with different needs and expectations. The first course "Fundamentals of Sausage and Processed Meats", held April 12 – 13, 2003, focused on the needs and limited equipment of the small/independent sausage maker. The second course "Value-Added Sausage and Processed Meats", May 1-3, 2003, not only covered the fundamentals, but also more advanced methods of meat processing using modern industrial equipment. The "Value-Added" short course attracted individuals from meat processing companies and associated supplier industries from Saskatchewan, Quebec, Ontario, and Alberta. Both short courses were filled to capacity (approximately 20 in each). We received some funding support from CARDS to help offset speaker and other costs. These courses were again held in April and May 2004. Both were well received and covered similar topics as the

2003 courses. The first course "Fundamentals of Sausage and Processed Meats" was held April 12 – 13, 2004. The second course "Value-Added Sausage and Processed Meats", May 1-3, 2004, attracted individuals from meat processing companies and associated supplier industries from Saskatchewan, British Colombia, Quebec, Ontario, and New Brunswick. Both short courses were filled to capacity (approximately 20 in each). Again, we recognize and are grateful for financial support from CARDS to help offset speaker and other costs.

In August 2003, we teamed up with the Saskatchewan Meat Processor's Association to present a Sausage and Processed Meats workshop in Whitewood, Saskatchewan. The response to this workshop was very positive. In October, Paul Rogers was invited to give two presentations at the "Sausage and Processed Meats Short Course Level II" course at the Alberta Food Processing Development Centre, Leduc, AB. There were approx 20 participants from Alberta and Saskatchewan.

The close working relationship with the Saskatchewan Food Industry Development Centre and Saskatchewan Agriculture Food and Rural Revitalization (SAFRR) continues to benefit all parties. On January 15, 2005 we joined with SAFRR and the Food Centre to offer a short course on Dry and Semi Dry Sausage processing to approx 20 meat inspectors. During this time period we played an active role as an invited participant in discussions with SAFRR and the meat industry in their evaluation of technologies that would permit ante and post mortem inspection of animal carcasses in rural areas of Saskatchewan. On October 17, 2006, Heather Silcox was an invited speaker at the Food Centre's Health Claims and Nutrition Labeling seminar. She gave a presentation on analytical methods used for food testing, and offered companies tips on sample selection and handling.

During 2007, three HACCP and Food Safety in Meat Processing Training Workshops were presented in partnership between the Saskatchewan Food Industry Development Centre Inc and the Meat Group at the University of Saskatchewan. These were held January 24-25, January 30-

31 and February 7-8, 2007 to groups of 20-25 public health inspectors from around the province. A total of approx 70 public health inspectors from across the province attended. We participated in these workshops by providing some of the lectures, organizing and running ½ day pilot plant demonstration sessions on manufacture of burgers, fresh sausage, hot dogs and hams. This initiative of the Saskatchewan Food Industry Development Centre resulted in a 226-page pocket reference manual for the meat inspectors and a course binder of materials on food safety and meat processing.

A few quotes from the course evaluation for the HACCP and Food Safety workshops are provided below:

"I really enjoyed the time spent in the meat processing area, the hands on experience will help in the field."

"The detailed information on meat and meat processing will be helpful in day to day activities"

"Learning about curing was very beneficial; this was an area I have had little exposure to"

"Seeing the different processing equipment in use was interesting and useful"

In 2008, we contributed to the Turkey Value Added workshop at the SMPA convention that was presented in collaboration with SIAST and the Meat group. The workshop included determining carcass yield and gave instruction on how to prepare various fresh value-added turkey products. A one-day workshop on Sausage Production entitled "Developing Winning Products" was held in April, 2008. This workshop focused on formulating recipes and ham and sausage processing.

The activities of the program were promoted around the province. In 2003, a presentation entitled "The Case for Product Development" was part of educational programs at the SAFRR rural services offices in, Meadow Lake, and Saskatoon and provided an overview of the program capabilities and the product development process. We also attended and gave presentations at several livestock producer field days and conventions.

We kept in contact with the industry and affiliated agencies by sending out newsletters with processing tips and research updates. See **Appendix 1** for an example. These mailers were sent to a mailing list of approximately 800 that H. Silcox maintains in a database, including meat processors, producers, and government personnel (eg. Agriculture Knowledge Centre and the Regional Development Teams) and affiliated agencies (eg various producer groups).

Objective 5:

To maintain the daily operation of the modern meat pilot plant in the College of Agriculture and provide technical support/assistance to meat research projects being undertaken at the University of Saskatchewan.

The organization and safety of the daily operations of the meat pilot plant in the College of Agriculture and Bioresources was overseen by program staff. All operating and sanitation procedures have been well documented, along with orientation procedures and material safety data sheets (MSDS).

Demonstrations on processed meats were given to students in several University of Saskatchewan courses (eg. AGRC 112 and ABE 61). Technical assistance with meat science research was provided to research scientists and graduate students. Over the life of the program, assistance was provided to eight graduate students working on meat-related projects. The project has been very valuable for sourcing meat, assisting with pilot plant work and offering advice so that projects are done with industry needs in mind.

Student	Dept	Project
J. Kusuma*	FABS	Color and lipid oxidation of fresh sausage
V. Thiagarajan*	ABE	Microwave drying of beef jerky
A. Perera*	FABS	Collegen properties of mature cattle
X. Li*	FABS	Gelation of PSE turkey

T. Sanjeewa*	FABS	Chickpea utilization in meat products
S. Dadgar	FABS	Poultry transportation and meat quality
T. Der	FABS	Lentil utilization in meat products
L. Stoll	FABS	Dietary effects on beef quality

The student names marked with an * have now graduated and gone on to work in the food industry or have continued on in a research capacity. The others are still completing their degrees. The program provided valuable contacts with industry for these students and helped guide their research activities.

INDUSTRY FEEDBACK

A meeting of Saskatchewan meat industry stakeholders was held on March 2, 2005 to provide advice and guidance to the program. Participants included:

Jacquie Gibney, Saskatchewan Agriculture, Food and Rural Revitalization
Dan Prefontaine, Saskatchewan Food Industry Development Centre
Larry Erber, Saskatchewan Meat Processors Association (small processors)
Kelly Ediger, Drake Meats (domestic / federal plant)
David White, Natural Valley Meats (federal plant under development)
Ron Pegg, Department of Applied Microbiology and Food Science.
Ian McNinch, Tee Creek Meats, (Producer/processor)

Overall, the comments from this gathering were very complimentary to the efforts of the program. Mr. Dan Prefontaine commented that he considered the product development done as part of this program to be vital to the Food Centre. Mr. Larry Erber, executive director of the Saskatchewan Meat Processors Association, had observed that the products at their meat competition were of higher quality than in the past, and attributed this improvement in part, to the various courses and talks and direct assistance given by the program. Mr. Kelly Ediger felt

that it was important that the program get out and visit meat processors whenever possible. Participants reaffirmed the value of this project to the meat industry in Saskatchewan and noted that, with the province's desire to expand value-added processing in the province, the program's services will be in greater demand in the future.

A letter of appreciation from Mr. Stu Irvine, President and CEO of S.J. Irvine Fine Foods is attached (**Appendix 3**). The efforts of the "U of S Meat Group" with respect to product development and technical support were highlighted in a recent report from the College of Agriculture and Bioresources, University of Saskatchewan (**Appendix 4**).

CLOSING COMMENTS

The completion of this project marks the end of a long era of providing comprehensive support to the Saskatchewan meat industry through product development, technical support and education. This program was looked on with envy from those in other provinces that were not able to offer this level of extension and technical support to their meat industries. I am certain the program contributed in a positive way to Saskatchewan food and meat companies.

Over the seven years of the project, it was my pleasure to oversee and contribute to this program. There have been a number of people involved, but I'd like to specially recognize H. Silcox, P. Rogers, R. Sefton, N. Wiebe and D. Pobereznek who carried out the day-to-day activities of the program. A special thanks also to T. Sanjeewa who has provided clean-up services for the past four years. The Saskatchewan Ministry of Agriculture must also be acknowledged for supporting this project and its predecessor, the Saskatchewan Food Product Innovation Program.

With the changing economic climate and the consolidations in the meat industry in the province, there does not appear to be support for continuation of these extension activities to the same extent in the future. I will continue to offer some support to the industry and the public as part of

my academic program. A selection of photos (**Appendix 5**) provides a final glimpse of program activities and personnel.

PERSONNEL CONTRIBUTING TO THIS PROJECT:

A) DIRECTLY FUNDED

Directly funded: (April 1, 2003 to February 29, 2004)

P. Rogers	Extension specialist	10 person months*
R. Sefton	Research Technical Assistant	11 person months
Casual help		4 person days

*part of salary is provided by the Value Added Beef Program with funding from the Saskatchewan Beef Development Fund.

Directly funded: (April 1, 2004 to February 28, 2005)

P. Rogers	Extension specialist	10 person months*
R. Sefton	Research Technical Assistant	6 person months**
Casual help		8 person days

*part of salary is provided by the Value Added Beef Program with funding from the Saskatchewan Beef Development Fund.
** remainder of salary contributed by fee-for-service product development

Directly funded: (April 1, 2005 to February 28, 2006)

P. Rogers	Extension specialist	3 person months*
R. Sefton	Research Technical Assistant	1 person month
N. Wiebe	Research Technical Assistant	10.5 person months
H. Silcox	Research Assistant	2 person months**
Casual help		6 person days

*part of salary is provided by the Value Added Beef Program with funding from the Saskatchewan Beef Development Fund.
** majority of salary provided by other grants

Directly funded: (April 1, 2006 to February 28, 2007)

N. Wiebe	Research Technical Assistant	12 person months
H. Silcox	Research Assistant	3 person months**
Casual help		10 person days

** majority of salary provided by other grants

Directly funded: (March 1, 2007 to November 30, 2008)

D.Pobereznek	Meat processing specialist	12 person months
N. Wiebe	Research Technical Assistant (casual)	2 person months
H. Silcox	Research Assistant	3 person months**
Casual help		10 person days

** majority of salary provided by other grants

Directly funded: (December 1, 2008 to December 31, 2009)

D. Moore	Meat processing specialist	7 person months
H. Silcox	Research Assistant	6 person months**
Casual help		12 person days

** majority of salary provided by other grants

B) OTHER PERSONNEL CONTRIBUTING

Z. Pietrasik, J. Dhanda, R. Pegg, D. Korber, E. Lee, X. Li, T. Sanjeewa, A. Perera, T. Der, S. Dadgar, K. Agyare, H. Wang, Department of Applied Microbiology and Food Science/ Food and Bioproduct Sciences

D. Prefontaine, S. Lui, E. Hiebert, B. Motilag, Saskatchewan Food Industry Development Centre

K. Bettcshen, C. Smith, J. Laturnas, K. Jackson, and C. Folkersen, Saskatchewan Agriculture and Food /Saskatchewan Agriculture, Food and Rural Revitalization / Saskatchewan Ministry of Agriculture

Appendix 1: Sample Informational Mailer

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Appendix 2: List of Short Course Materials Produced

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Appendix 3: Letter of Appreciation / Support

Date: November 27, 2008

Support for the Saskatchewan Meat Industry Service Program

S.J. Irvine Fine Foods is a new Federally Inspected Meat Processing facility located in Saskatoon. Our goal is to be the private label supplier of choice providing consistent quality and innovation to our valued customers.

Development of new products and processes are vital to the growth of our organization. The Meat Industry Service Program located in the Department of Food and Bioproduct Sciences at the University of Saskatchewan is uniquely suited to the development needs of the industry. The experienced staff and pilot plant equipment has allowed us to cost effectively develop and evaluate new products and processes.

S.J. Irvine Fine Foods recognizes and appreciates the service the program provides and encourages continued support of this valuable program.

Sincerely,

Stu Irvine
President/CEO
SJ Irvine Fine Foods Ltd

Appendix 4: Recent press on the "Meat Group" in the AgKnowledge Magazine from the College of Agriculture and Bioresources.

MAKING AN IMPACT

MEAT SCIENCE BENEFITS INDUSTRY AND PUBLIC

Research at the College has wide-ranging benefits for industry and the public. Take the work of Phyllis Shand and her colleagues in meat science, who assist the community through advice, facilities and training.

When meat companies need troubleshooting advice, they often approach Shand. "They might be having a difficulty with a product not having the shelf life they expected," she says, "or it may not have the correct texture." College expertise also comes in handy when industry-wide challenges arise. "When the borders became closed during the BSE crisis," Shand says, "we had a larger supply of mature cattle in the country." In collaboration with industry and government, "we looked at adding value to tougher meat cuts."

The food and meat sciences pilot plant is a valuable resource for Saskatchewan processors. "I can't say enough about the College," says Paul Rogers, Product Development Manager of SJ Irvine Fine Foods, which has used the pilot plant to evaluate new products and techniques. "It's an awesome facility," he enthuses. "The equipment and personnel are top-notch."

Rogers speaks not only for his company, but also as a member of the Saskatchewan Meat Processors' Association. "The College, particularly Dr. Shand and her group, have been very generous," he says, "offering the facility for our workshops during our annual convention."

Shand has also worked extensively with the Saskatchewan Food Industry Development Centre, a provincially funded non-profit facility. As a highlight of that relationship, Shand cites the co-designing of a course for public meat inspectors.

Even on an informal basis, meat science at the College benefits the public. "On occasion," says Shand, "I'll get questions from consumers: 'I boiled my chicken and it's turned green—what's going on?' That kind of thing."

Whether through major collaborations or simply by answering an anxious phone call, Shand and the Meat Sciences group are making a lasting impact on the community.

College of Agriculture and Bioresources

Appendix 5: Program Personnel in Action

THE MEAT GROUP